

# Lesson Learned from Marsh Creation Projects

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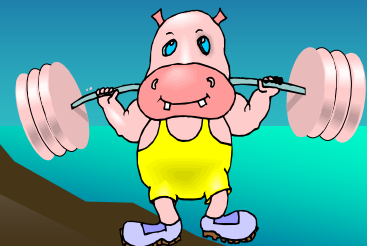
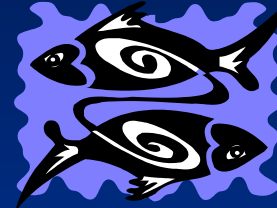
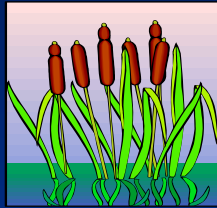
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# General Findings

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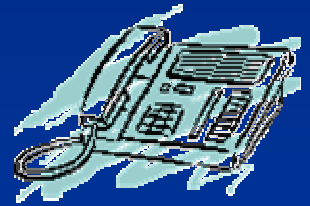
- Correct elevation is critical for success
  - Target
  - Achieved
- Containment & de-watering often a problem
- Vegetation responds to hydrology
  - Composition can change rapidly initially
  - Desired community may not be achieved unless planted
- Multiple lifts and maintenance may be needed to achieve/maintain optimal elevation



# Planning

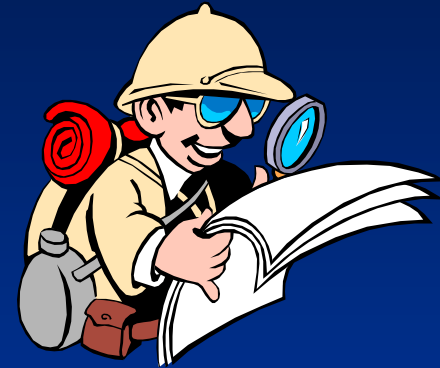
*marsh creation*

- Greater pre-construction data collection in project, adjacent, and reference areas
  - elevation surveys
  - plant and soil surveys
- Greater coordination/communication between biologists and engineers
- Well-defined target elevations and goals
- Establish clear understanding between CWPPRA agencies and landowners/lessees of no modifications without written agency consent



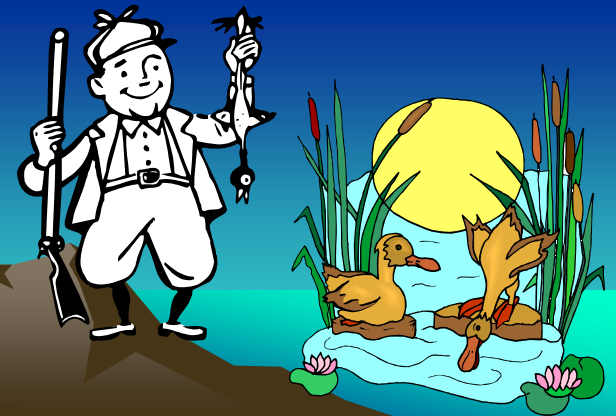
# Engineering/Construction *marsh creation*

- Continued communication between engineers and biologists
- Closer construction inspection
  - Targeted elevations and goals
  - Damage to adjacent marsh
- Dredge contractor payment
  - For actual area or volume filled
  - Not for volume cut
- Incorporate multiple stages or lifts
- Plan for tidal creek development
- Plan for future leveling or gapping of containment dikes to marsh elevation once consolidated



# Operations/Maintenance *marsh creation*

- Initial plantings may be most successful at least one year after material placement
- Do not rely on natural colonization
- Budget for:
  - maintenance dredging
  - maintenance plantings
- Level or gap containment dikes
- Operate as planned

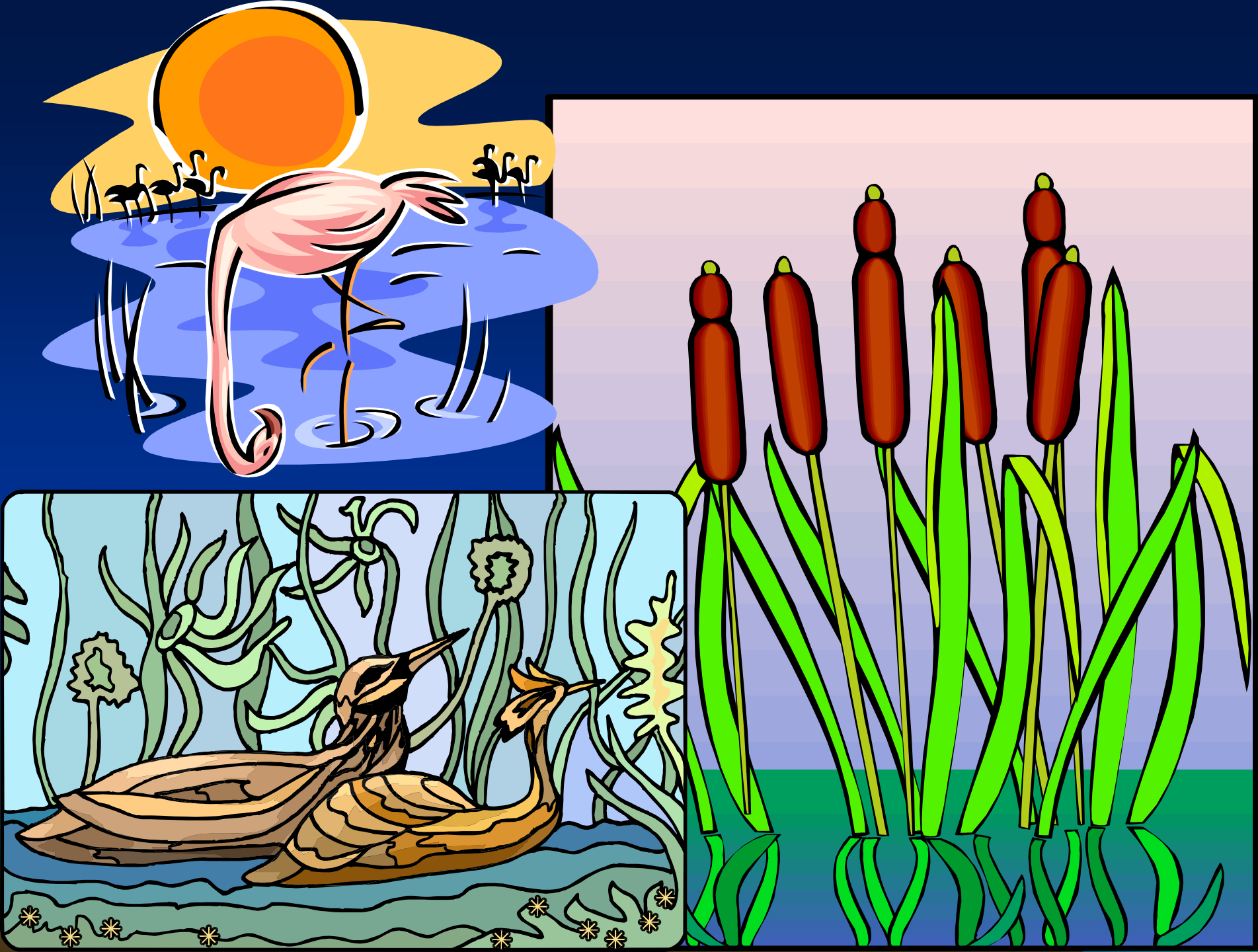


# Monitoring

*marsh creation*

- Include
  - Target reference marsh
  - Vegetation and soil characterization
  - Planting success
  - Re-surveying elevations and staff gages
  - Aerial photography
- Vegetation monitoring effort may be reduced in initial year(s) as environment stabilizes
- Standardized sampling techniques







# Recommendations *marsh creation*

- Improve targets and goals for elevations and vegetative community
- Better construction oversight
  - Correct material placement
  - Minimize marsh damage
- Dredge contractor payment for actual area or volume filled, not for volume cut
- Staged construction, multiple lifts
- O & M budget for fine-tuning elevation and plantings

